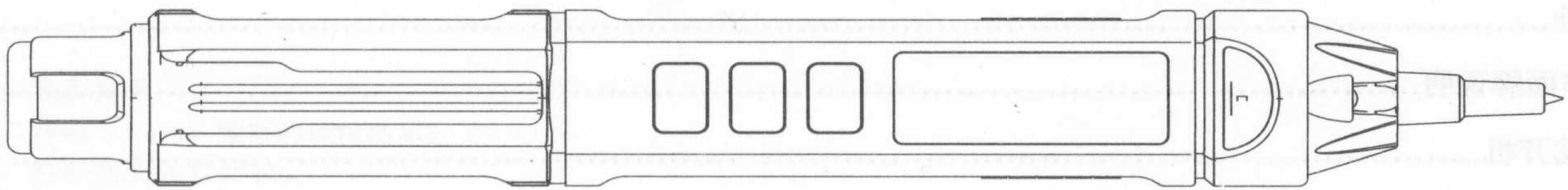
迷你笔式万用表

Mini Pen Multimeter User's Manual



一、Overview

6000counts is a pocket type 3 5/6 digits true effective value, pen-type smart multimeter, no need to turn the dial to select the function, according to the input voltage / resistance / difference, the meter will automatically identify and measure, the performance of this machine Stable, high precision, high reliability, clear reading, overload protection function.Driven by a AAA 1.5V battery, this meter uses a large LCD display and a boost power supply. Even at the edge of a 0.8V low battery.This meter is easy to carry and is a meter that most users like very much. This series of meters can automatically identify DC voltage, AC voltage, resistance, without any switching, and can also be manually switched to measure capacitance, diode, continuity test, non-contact Voltage measurement, zero live line measurement, phase sequence measurement and other parameters, It is a tool meter with superior performance, an ideal tool for laboratories, factories, radio enthusiasts and families。

二、Safety Precautions

This series of meters is designed to comply with IEC1010 (safety standards promulgated by the International Electrotechnical Commission). Please read the safety precautions before using it.

1.When measuring voltage, do not input a limit voltage that exceeds the effective value of DC1000V or AC 700V;

2.The voltage below 36V in the current file is a safe voltage;

3.When changing functions and ranges, the test leads should leave the test point;

4.Choose the correct function and range, and beware of wrong operation. Although this series of instruments has full range protection, for safety reasons, please pay more attention;

6. Safety symbol description "⚡" Dangerous voltage exists, "⏚" Grounded, "⧈". Double insulation,

"⚠" The operator must refer to the manual

三、characteristic

1.General characteristics

1-1.Display mode: liquid crystal display;

1-2.Maximum display: 5999 (3 5/6) automatic polarity display;

1-3.Measurement method: double integral A/D conversion;

1-4.Sampling rate: about 3 times per second;

1-5.Over-range display: the highest position displays "OL";

1-6.Working environment: (0～40)℃, relative humidity <80%;

1-7.Power supply: AAA 1* 1.5V battery;

1-8.Volume (size): 170×24×21mm (length×width×height);

1-9.Weight: about 50g (including 1.5V battery);

1-10.Accessories: One manual, one certificate, one outer box, 1 pcs test lead, and one AAA1.5V battery。

2.Technical characteristics

2-1.Accuracy: ±(a% of reading + least significant digit), guaranteed accuracy Ambient temperature: (23±5)℃, relative humidity <75%, calibration guarantee period is one year from the factory date。

2-2.Performance (Note "▲" means the watch has this function）

Features	
DC voltage DCV	▲
AC voltage ACV	▲
Resistance/diode/continuitytest/capacitance	▲
Non-contact phase sequence measurement type B	▲
Color screen display type B	▲
Black and white display type A	▲
NCV	▲
Neutral/Fire Test	▲
Full unit symbol	▲
Backlight manual/automatic shutdown	▲
True RMS measurement	▲
Temperature (℃/℉) normal temperature display	▲
Flashlight lighting	▲

四. operation panel instruction

1 . Test pen tip: positive end test point of voltage, resistance, capacitance, frequency, phase sequence;

2. Input end test protective glue

3. Flashlight;

4. Signal indicator;

5. LCD display;

6. Power and function selection key SELECT (long press for power on and off, short press for manual DC voltage/AC voltage respectively/Resistance/diode, buzzer measurement/ capacitance/frequency/temperature measurement);

7.Lock the HOLD button; (if the LCD display is black and white, long press is to turn on and off the backlight)

8. Electric field induction measurement/zero line

9. measurement/phase sequence measurement:
This series is divided into phase sequence measurement (color screen display) and non-phase sequence measurement (black and white screen) two models;

9. Pen hang;

10. Measuring negative input COM;

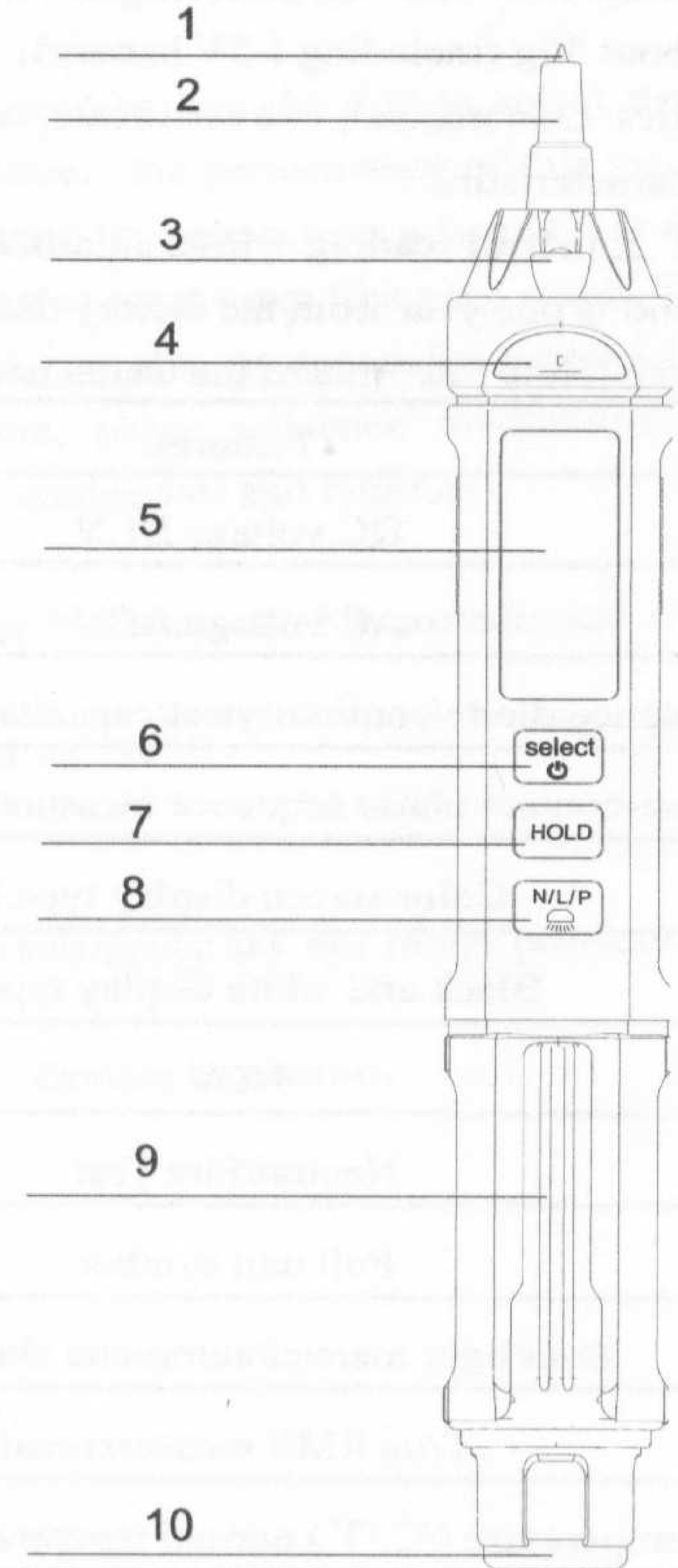


figure1

3. Technical index

2-3-1. DC voltage/AC voltage automatic scanning test (DCV/ACV)

Accuracy / range	6000counts	Resolution
DC/AC6V		0.001V
DC/AC60V	±（0.5%+4）	0.01V
DC600/AC600V		0.1V
DC1000V/AC700V	±（0.8%+10）	1V

Input impedance: 10MΩ ; Overload protection: true RMS measurement, frequency response is 50Hz-800Hz, DC1000 or 700V AC peak value.。

The specific operation is as follows:

1.Press and hold POWER for more than 2S, and it will display in automatic scanning state "AUTO"。

2.Insert the black test lead into the "COM" tail jack, and the positive electrode is the tip of the front end; the tip of the test pen is in reliable contact with the measured point。

3.When the measured voltage between the input port "COM" and the "pen tip" is greater than 0.8V, regardless of the AC voltage or the DC voltage, the meter will compare the DC component and the AC component, take the larger component signal, and then according to the measured value The size is automatically switched between DC6V/60V/600V/1000V, AC6V/60V/600V/700Vand then the measured value is displayed on the LCD。

notice:

1)The input voltage must not exceed DC1000VORAC700V. If it exceeds , there is a risk of damaging the meter circuit; when high-voltage circuits, pay special attention to avoid electric shock;

2)After completing all measurement operations, disconnect the test leads from the circuit under test。

2-3-2.resistance（Ω）

Accuracy / range	6000counts	Resolution
600Ω	±（0.8%+5）	0.1Ω
6kΩ	±（0.8%+3）	1Ω
60kΩ		10Ω
600kΩ		100Ω
6MΩ		1kΩ
60MΩ	±（2.5%+3）	10kΩ

Input impedance: 10MΩ ; overload protection: DC1000V or 700V AC peak value.

The specific operation is as follows:

1.The boot display is automatic scanning state "AUTO"。

2.Insert the black test lead into the "COM" tail jack, and the positive electrode is the tip of the front end; the tip of the test pen is in reliable contact with the measured point。

3.If the measured resistance at both ends of the test lead is less than 50Ω , the buzzer will emit a continuous beep, and quick buzzer measurement is required, please press the power key to enter the buzzer quick measurement。

4.If you are measuring closed loop resistance, you must discharge the resistance at both ends of the resistance to be measured. Otherwise, if the voltage in the loop is greater than 0.8V, the meter will mistake it for voltage measurement and enter the voltage measurement mode.

5.Enter the resistance measurement value between the input port "COM" and "pen tip", the meter will automatically switch between 600Ω /6kΩ /60kΩ 600kΩ /6MΩ /60MΩ according to the resistance measurement value, and then the measured value will be displayed on the LCD。

notice:

1）When measuring low resistance, the test leads will bring internal resistance. In order to obtain accurate readings, you can record the short circuit value of the test leads first, and subtract the value when the test leads are short circuited from the measurement readings.;

2）When measuring online resistance, all power supplies of the circuit under test must be turned off and all capacitors must be completely discharged to ensure the correct measurement value;

2-3-3.Fast continuity test/diode/capacitor

range	Display value	Test Conditions
"AUTO"	Diode forward voltage drop	The forward DC current is about 1mA, the open circuit voltage is about 3V,
	The buzzer sounds for a long time, and the resistance of the two test points is less than (50±20)Ω	Open circuit voltage is about 0.4V, press "power" to switch between two functions

2-3-4.电容(C)

Accuracy / range	6000counts	Resolution
10nF	±（3.5%+20）	10pF
100nF		100pF
1uF		1nF
10uF		10nF
100uF		100nF
1mF		1uF
10mF		10uF
60mF	±（5%+3）	100uF

Overload protection: DC1000V or 700V AC peak value.

1.The power-on display shows the automatic scanning state "AUTO".

2.Insert the black test lead into the "COM" tail jack, and the positive electrode is the tip of the front end; the tip of the test pen is in reliable contact with the measured point。

3.If you need fast continuity test/diode/capacitance measurement, constantly trigger the "power" switch, enter the fast continuity test/diode/capacitance measurement in one cycle, and select the corresponding function measurement according to the measurement requirements. When measuring the capacitance, the measured capacitance The size will automatically select different ranges, and the measured value will be displayed on the LCD. The capacitance measurement range is 10nF/100nF /1uF/10uF/100uF/1mF/10mF/60mF.

notice:

1）When measuring capacitance in the 10nF range, there may be residual readings in the value displayed on the screen. This number is the distributed capacitance of the test leads and is an accurate reading. You can subtract this value after the measurement;

2）When the large capacitance file is measuring serious leakage or breakdown capacitance, some values will be displayed and unstable; when measuring large capacitance, the reading will take a few seconds to stabilize, which is normal when measuring large capacitance;

3）Please fully discharge the capacitor before testing the capacitance, otherwise it will enter the voltage measurement mode。

4）Unit: 1F=1000mF 1mF=1000uF 1uF =1000nF 1nF=1000pF

2-3-5. NCV/LIVE/phase sequence measurement (this series is divided into two models: phase sequence and no phase sequence, the model with phase sequence measurement is a color screen, and the phase sequence measurement is a black and white screen);

The operation is as follows:

3. Power-on state is automatic scanning state;

4. Trigger the "NCV/LIVE/P" key; enter the electric field measurement EF/zero fire/measure LIVE/phase sequence measurement P respectively, and switch between auto/EF/LIVE/P in turn;

NCV measurement: trigger the "NCV/LIVE/P" key; enter the EF measurement, the LCD displays "EF", when the pen tip is close to the power test point (the measured frequency is 50Hz/60Hz), the LCD will display different according to the signal strength The buzzer will make different sounds, and the indicator will also emit different lights according to the strength of the signal, green light when weak, and red light when strong;

LIVE measurement: Trigger the "NCV/LIVE/P" key twice; enter the LIVE measurement, the LCD will display "LIVE". When the pen tip reliably touches the live wire test point, the LCD will display OL, and the buzzer will emit a continuous beep and indicate at the same time The lamp glows red。

PHASE (phase sequence) measurement: Trigger the "NCV/LIVE/P" key three times; enter the phase sequence measurement, the LCD displays PA, the display screen A keeps flashing, and the sensor tip is pressed tightly to the first

The first phase wire, wait for a beep; display the blinking B symbol, close the meter pen tip to the second phase wire, wait for a beep, display the flashing C symbol, place the meter pen tip close to the second phase wire, and wait for the beep After the test is completed, the display screen will display the test result on the screen.

Notice：1）Please stick the pen tip to the phase line；

2）The shielded wire/cable and the thickness of the insulation material will affect the measurement results. If the cable shielding affects the measurement, you can measure near the exposed port；

3) When the pen tip is close to the measurement, try to be close to the phase line vertically, separate the phases as much as possible, and do not cross between several phase lines, which will cause mutual interference;

4）“ ” The symbol means left-handed

5）“ ” Symbol means right hand；

6）Please complete the three phase sequence test within 1 minute, otherwise an error will occur; if an error occurs during measurement, please trigger the "NCV/LIVE/P" key to re-measure，

2-3-6Temperature measurement (℃/℉)

Accuracy / range	6000counts	Resolution
(-20-50)℃	±（1.0%+5）<50℃;	1℃
(0-122)℉	±（0.75%+5）<122℉;	1℉

Overload protection: DC1000V or 700V AC peak value.

1. The boot display is automatic scanning state "AUTO"。

2. Trigger the power button, you can manually switch to: DC voltage (automatic measurement without threshold voltage) → AC voltage (automatic measurement without threshold voltage) → diode → fast buzzer → capacitance → temperature measurement (℃/℉), cycle in turn。

3.Only show room temperature；

六. Automatic boot

When the meter is out of use for about 5 minutes, the meter will automatically power off and enter the dormant state; if you want to restart the power, press and hold the "power" button for more than 2 seconds, the LCD will display automatic scanning "AUTO", and there will be an automatic

shutdown symbol "APO";

4) When the user is operating and measuring, it will not shut down, and only after stopping use can it automatically shut down for 5 minutes;

2) The base number of the capacitor file is within 100 characters, and the ACV is within 5 characters, it will automatically shut down. When the display value of the capacitor file is greater than 100 characters, the ACV is greater than the displayed value and greater than 5 characters. The user is measuring

It won't shut down automatically;

5) Automatically shut down in 5 minutes during electric field measurement/fire wire measurement/phase sequence measurement;

七、Troubleshooting

If your meter does not work normally, the following methods can help you quickly solve general problems. If the fault still cannot be eliminated, Please contact the repair center or dealer。

Failure phenomenon	Inspection site and method
Did not show	Power is not turned on
	Replacement battery
Large resistance display error	The test lead is not in good contact

This manual is subject to change without notice;

The content of this manual is considered correct. If users find errors or omissions, please contact the manufacturer;

The company is not responsible for accidents and hazards caused by users' wrong operations;

The functions described in this manual are not used as a reason for using the product for special purposes。

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